with a second room for the Library, has been generously placed at the disposal of the executive committee, by the council of the College, until such time as a separate building can be provided for the museum. The articles exhibited are arranged in six classes, and a brief description of these will serve to indicate sufficiently that the museum is likely to be of great service to those engaged in studying the sanitary construction of houses and other branches of hygiene. It should be stated that the classification is only a temporary one.

In Class I. (Engineering) will be found plans, sections, and models of systems of drainage for cities, towns, and villages, including the whole of the contract drawings used in connection with the construction of the present system of drainage in the metropolis. Maps, &c., illustrating the physical geography of this and other countries, plans of existing and proposed means of water supply for towns, sections of geological formations, and views of the position and surroundings of places noted as health resorts, apparatus in connection with water-supply, and the sinking of wells, are also included in this class.

Class II. (Architecture) consists of general designs for dwellings, hospitals, and other buildings, together with examples of the details of construction. This is by far the largest and most complete section of the museum; already it includes hundreds of models, or specimens of mechanical appliances, and modes of building construction—illustrating in detail the several parts of a well-built house, from the foundation to the roof—bricks, concrete, and other material for walls; artificial stone as a fireproof substitute for timber, &c., so commonly used for heads over door and window openings; also water-closets of every description; baths; stoneware, lead, and iron pipes; syphon and other traps; yard gullies, and contrivances for disconnecting the main sewers from the house pipes, may be seen and compared. Windows and doors so arranged as to give ventilation to the apartment in which they are fixed, stoves of various kinds, ventilating gas lamps, cowls for chimneys, and soil pipes, and other mechanical appliances designed to promote health in connection with architecture, make up this department.

In Class III. (Furnishing) are arranged specimens of school and household furniture presenting features of hygienic interest, including English and foreign oil lamps, specimens of wall papers, arsenical and non-arsenical; and here it may be interesting to state that the library of the museum has been decorated throughout with the new paint, in which zinc white is used as a substitute for white lead.

Class IV. (Clothing) is intended to include fabrics of various kinds used for clothing, with explanation of their properties and uses; but at present this class is only represented by some specimens of army clothing, and a few articles of dress coloured with arsenical pigments.

Class V. (Food) has been largely contributed by the authorities at South Kensington and Kew. It includes a number of large diagrams illustrating the component parts of food and the adulteration of articles of food in common use; samples of gluten bread and other foods for invalids; preserved fruits, seeds, &c.; different kinds of filters, and samples of water.

Class VI. (Preservation and Relief) is composed of all that relates to the hospital, the prevention of accidents or diseases peculiar to certain trades or occupations; disease charts, means for safety and rescue in case of fire, or accidents at sea; stoves for disinfecting purposes, Turkish bath apparatus, &c.

A library is being formed of books relating to hygiene. Exclusive of pamphlets, about 350 volumes are now deposited in the museum for reference, and in addition to these the reading-room is supplied with periodical publications and reports.

It will thus be seen that the Parkes Museum is fairly established. Owing to the limited means at the disposal of the Committee the museum is only opened to the public free on Tuesdays, Thursdays, and Saturdays, from 10 to 2 o'clock. This is perhaps a convenient time for architects, doctors, and other professional men, but it would be more completely supplying a public want if so beneficial an institution were opened during the evening, or at some such time when artizans and those actually engaged in building construction and sanitary work, might best avail themselves of the opportunities for gaining that enlightenment and knowledge which frequent and studious inspections of the contents of this museum of Hygiene would naturally afford them.

NOTES

THE building of the U.S. National Museum is approaching completion at Washington. It stands in the close neighbourhood of the Smithsonian Institution, but is of so different a style of architecture that it will not seem to dwarf the older structure by comparison. The area required for the museum, *Science News* informs us, is 327 feet to a side; in all, about 100,000 square feet, which is a somewhat greater space than the "Government Building" covered at the Centennial Exhibition; but is intended to be capable of holding and satisfactorily showing at least twice as many objects. The building is a square, with ornamental towers at the corners. It rises by a succession of clerestories to a centre surmounted by a dome. The height of the roof at the outer edge is 27 feet; the central room covered by the dome is 90 feet high. Exclusive of the towers, there are seventeen rooms in the interior, and of these apartments five are 65 feet square, four are 65 by 52, four are 91 by 52, and four are 101 by 65; the last mentioned being 45 feet high, and the rest of lesser heights except the one under the dome. The corner towers contain about 160 rooms, of which sixteen are 30 feet square, sixteen are 30 by 20, and the remainder are about 13 feet square, but arranged in suites of twos and fours. The larger of the tower-rooms will probably be kept for distinct collections, open to the specialist but not to the public. In the general exhibition rooms, there will be 5,000 feet of dead wall against which cases can be placed, and these if set end to end would extend over 8,000 feet. The total length of shelving in these cases will be 28,000 feet; the area, 74,000 square feet; a visitor who examines all the cases will traverse a circuit of nearly three miles. The museum will contain all that the Government displayed at Philadelphia; all the exhibits of foreign countries which were presented to the United States at the close of the Centennial show; the accumulations of the national surveys; the collections which are now overrunning the Smithsonian and the Patent Office, and a very extensive and complete exhibit of our fishing industries. Not a particle of wood will be used in constructing the building; hence it will be fireproof. It is to be warmed by steam in winter, and perhaps will be cooled in summer, so as to give a uniform temperature throughout the year.

THE death is announced of Dr. Eduard Fenzl, of Vienna, Professor of Botany and director of the Imperial Botanical Cabinet. Dr. Fenzl was a member of the Vienna Academy of Sciences and vice-president of the Vienna Horticultural Society. He died on September 29 last at the age of seventy-two years.

AT Baden-Baden the German geologists held their meeting after that of the German Association was over, viz., on September 26 and 27. Prof. Knop, of Karlsruhe, presided. There were some sixty members present from all parts of Germany and Austria. Mineralogical, geological, and palæontological papers were read by Professors Beyrich, Knop, Beneke, Häusler, Baumhauer, Eck, von Mojsisovics, and Tschermak.

THE American Association have selected Boston for their meeting next year, a pressing invitation from San Francisco

having meantime been declined. The president at the Boston meeting will be Prof. Morgan, of Rochester.

M. OTTO STRUVE, as our readers probably know, was recently in the United States, when he visited the works of Mr. Alvan Clark, the celebrated optician, and ordered an object-glass of 80 cent. diameter for Pulkowa's Observatory. We are informed that in consequence of that visit, Mr. Clark has gone to Paris in order to have the glass cast at M. Feil's works, rue Lebrun.

THE opening of the Practical School of Astronomy, of which we have already spoken, will take place very shortly at the Paris Observatory. The delay which has occurred has been occasioned merely by the absence of M. Ferry, who has been travelling through the whole of the provinces advocating in favour of Article 7 of his Education Law.

A NUMBER of scientific men are organising a Geographical Society in Algiers. The number of subscribers is not less than 200, and a general meeting has been convened for electing the officers of the Association. The success of that movement has led others to attempt the foundation of an Algerian Society for the Advancement of Science; but this is not likely to be successful, the attempt being premature.

PROF. PIAZZI SMYTH has been advocating the erection on one of the heights of Cyprus of a sort of Imperial Observatory, for which he thinks its clear atmosphere and sunny climate peculiarly adapted. He wonders how the British astronomers can exist at all in this cloudy and smoky climate.

THE following is the title of the essay to which the Howard Medal of the Statistical Society will be awarded in November, 1880. The essays to be sent in on or before June 30, 1880:—"The Oriental Plague in its Social, Economical, Political, and International Relations: Special Reference being made to the Labours of Howard on the Subject." The Council have decided to grant the sum of 20*l*. to the writer who may gain the "Howard Medal" in November, 1880.

THE Trustees of the British Museum are making arrangements to light the reading-room by means of the electric light. Waterloo Bridge has been lit up by ten electric lamps on the Jablochkoff system.

FROM a number of the *Otago Witness* which has been sent us we are pleased to see that science has not a few enthusiastic disciples in New Zealand. Prof. Black, of Dunedin, we are told, delivered the fifth lecture of the course in the chemistry lecture-room on July 12. For want of sufficient accommodation, the lecture was delivered twice—to the far-distance teachers, from 12.30 to 4 P.M.; and to the teachers resident in Dunedin and suburbs, from 5 to 9 P.M. As usual, the lecture-room was full on each occasion, about 180 teachers—80 of whom were ladies—being in attendance. Many of these came from a great distance. One gentleman came from Ngapara, 93 miles north from Dunedin; another from beyond Clinton, 75 miles south of Dunedin—thus bringing together teachers whose schools are 168 miles apart. About 20 of the teachers who attend these classes come more than 60 miles—from Lawrence, Oamaru, and beyond Balclutha. Over 60 of them come more than 30 miles. "Altogether, we believe," the *Witness* states, "the distances travelled to attend a course of lectures is quite unprecedented in any country, and our teachers are to be greatly commended for the interest which they take in the subject."

THE first meeting of the session of the Society of Medical Officers of Health will be held at 1, Adam Street, Adelphi, tomorrow at 8 P.M., when an inaugural address will be delivered by the president, Dr. J. S. Bristowe.

PROF. CORFIELD'S Introductory Lecture to the Ladies' Class of Hygiene and Public Health at University College will be delivered on Wednesday, October 22, at 3 P.M. The course will be continued on succeeding Wednesdays at the same hour.

IN the *Revue Scientifique* of September 27 is an interesting paper by E. B. Renault on the Comparative Structure of some Stems of the Carboniferous Flora.

AT Belgrade there were two shocks of earthquake on Friday and one on Saturday; on Saturday a shock was felt at the Roumanian town of Turn-Severin on the Danube.

DR. J. E. TAYLOR'S Winter Course of Lectures in connection with the Ipswich Museum will be on Flowers and Fruits. The average attendance at these lectures is 500 people, chiefly of the working class.

THE third part of Dr. Dodel-Port's excellent "Atlas der Botanik" is to be published within a few days. It will contain: (1) *Ulothrix zonata;* the most important points in the whole development of one of the lowest sexual chlorophyll *Algæ*. This treatise is an abstract of a monograph which the author published some years ago and which excited considerable interest at the time. The original treatise was noticed in these columns (vol. xv. p. 511). (2) *Polysiphonia subulata;* the fertilisation of a red sea-weed by animalcules, of which we gave an abstract a few numbers back (vol. xx. p. 463). (3) *Schizomycetes;* different types of putrefaction- and infection-fungi (with *Spirochæte Obermeieri*, the contagium of a certain typhoid disease). (4) *Bacterium anthracis;* the whole development of the carbuncle fungus according to the researches of Prof. Nägeli, of Munich, and of the author himself. (5) The development of the prothallium of the fern genus, *Aspidium*, from the spore to the formation of embryos. (6) *Cycas circinalis* and *C. revoluta;* female plant, female flower, carpel and fruit of the lowest flowering plant. Besides his "Atlas der Botanik," which involves years of hard work, Dr. Dodel-Port is about to publish a profusely illustrated work, "Bilder aus dem Pflanzenleben," which is written in popular language and is intended to bring the most interesting and most important questions of scientific botany before a larger public. The first part of this new book is to appear early in November.

AN interesting surgical case was recently reported by M. Larrey to the French Academy of Medicine. A young carpenter received a blow from an axe on his right foot. The big toe was almost completely detached; it was held merely by a small thread of skin, and hung on the side of the foot. Dr. Gavey, who was at once called in, detached the toe completely, then after having washed it and the wound on the foot, he adapted the two surfaces as well as possible one to the other, and made them hold together by means of strips of lint soaked with collodion and placed along the toe. When the collodion had set another strip was wound round. Further, an apparatus was used to keep all the parts of the foot in perfect immobility. Twelve days after, the dressing gave no bad smell, the patient was very well, and desired to go out, and twenty-four days after the accident the cicatrisation was perfect.

WE are sure our readers would welcome the very simple scheme proposed by Mr. Clifford Eskell for the giving of receipts by the Post Office officials for the posting of letters or other documents, at the cost of one farthing each. Mr. Eskell has forwarded us specimens of the "posting proofs" proposed by him, and they seem to us both simple and well adapted for their purpose. Some such arrangement as this would often save a world of trouble, and we trust that means will be taken to induce the Post Office authorities to give it a fair trial.

THE Smithsonian Institution, we learn from *Science News*, has lately added to its series of Check-Lists, one by Prof. A. E. Verrill, which originated in the useful purpose it would serve in the scientific work of the U.S. Fish Commission. It is entitled

"Preliminary Check-List of the Marine Invertebrata of the Atlantic Coast from Cape Cod to the Gulf of St. Lawrence." The paper, however, is not a complete catalogue. The whole of the groups Entomostraca, Nematoda, Rotifera, Trematoda, Cestoda, Acanthocephala, most of the sponges, and the protozoans, have been omitted. This is due to the fact that Prof. Verrill considers our knowledge of them too inadequate to justify a place in this check-list. The amphipods are represented by a blank, and the annelids leave room yet for many additions. Moreover, species not found at a depth of less than 200 fathoms are omitted, and likewise those from the Grand Banks of Newfoundland, which will be the subject of a separate publication. Despite these limited conditions of the work, a surprising number of marine invertebrates is catalogued—no less than about 11,000 species. Various signs and letters indicate the geographical distribution of many of the rarer species, and add value to the paper, which serves, among other uses, as a partial record of the zoological results of the Fish Commission's dredgings. As yet only a small "author's edition" has appeared; but a revised issue of a large number of copies will soon be sent out.

On October 1 a double ascent, which produced some sensation at Paris, was made at La Villette gas-works. The balloons *European*, 650 cubic metres, carrying two aëronauts, and *Observatoire Aérien*, 350, carrying one, were sent up connected by a telegraphic wire of 120 meters weighing 1,500 grammes, and susceptible of a resistance of 15 kilogrammes without breaking. One aëronaut in each balloon carried round his body an inversion element and a Morse telegraph. Telegraphic signals were exchanged successfully during the connection, which lasted for thirty-three minutes, in spite of the differential motions of the air, which was in a state of rather great agitation. As it was very easy for the aëronauts to keep up conversation, no regular messages were sent through the wires. Other experiments will be made shortly with telephones, and a kilometre wire weighing 27 kilogrammes, and resisting a traction of 100 kilogrammes without breaking. In the experiment of October 1 the rope was disconnected only, because the aëronaut of the *Observatoire Aérien* expressed the wish to ascend to a greater height. As soon as the balloons were separated, each of them parted in a different direction. One of them landed in the north-east of Paris, and the other in the north-north-east. The separating force can be valued to the tenth part of the propulsion. The idea of sending up a couple of balloons connected by a telegraph or telephone wire must be attributed to M. Jovis, who was the captain of the *European*. M. Henry Ménier, the maker of telegraph wires at the Grenelle Works, has long entertained the idea of using the differentiation of velocity of each balloon with the current of air in which it is immersed for steering them with sail or rudder. He is to construct for this purpose a special cast-steel wire, susceptible of great resistance. It remains to be seen what is the practicability of these and other schemes; but the fact of sending up two balloons so connected, and of keeping them in connection at will, unquestionably opens up a large field for future observations and scientific explorations which must be noticed.

Mr. James Paton, Curator of the Kelvingrove Museum, Glasgow, has prepared an interesting report of an official visit he paid recently to the museums and art galleries of Holland and Belgium. All the principal cities of these countries, he shows, are provided not only with magnificent art galleries, but with excellent scientific and technical museums, presenting an enviable contrast to most of the large cities of this much wealthier country. Mr. Paton reads the citizens of Glasgow a lesson which might well be taken to heart by other towns both in England and Scotland. "In point of population, wealth, and resources," he concludes, "not one of the towns alluded to in this report approaches the city of Glasgow. Taken altogether, their industries are fewer, less diversified, and less extensive, and their access to and command of markets, and consequently their opportunities for commercial development, are not equal to those enjoyed by our citizens. With less ability to maintain their great public institutions, and with less urgent necessity for them, on account of the limited industrial sphere of their inhabitants, these cities have put forth efforts on a scale which, if equalled in Glasgow, could not fail to have a most marked effect on the industrial standing of the city, at once elevating and refining the taste, stimulating thought and research, and suggesting new inventions and combinations. These institutions raise the whole mass of the population to a higher level, and they broaden and deepen the fertilising stream of industrial activity."

Mr. Edward Whymper is about to issue a condensed and cheaper edition of his "Scrambles Amongst the Alps" under the title of "The Ascent of the Matterhorn." It will be published by Mr. Murray. Among other forthcoming books to be published by Mr. Murray we notice the following:—"A History of Ancient Geography," by E. H. Bunbury, F.R.G.S., with index and maps; "The River of Golden Sand," being the narrative of a journey through China to Burmah, by Capt. Wm. Gill, R.E.; in two volumes, with a map and illustrations; "A Lady's Life in the Rocky Mountains," by Isabella Bird; "A Sketch of the Life of Erasmus Darwin," by Charles Darwin, F.R.S.; with a Study of his Scientific Works, by Ernest Krause, translated by W. S. Dallas.—Messrs. Crosby Lockwood and Co. have nearly ready for publication a "Treatise on Metalliferous Minerals and Mining," by D. C. Davies, F.G.S., Mining Engineer. The book will be illustrated with numerous wood engravings.—Mr. David Bogue has in the press a Manual of the Infusoria, by Mr. W. Saville Kent, F.L.S. The volume will comprise a descriptive account of all known Flagellate, Ciliate, and Pentaculiferous Protozoa, and will be accompanied by numerous illustrations; it will probably be ready in March next. Mr. Bogue will also publish shortly a work on the "Sphagnaceæ, or Peat-Mosses of Europe and North America," by Dr. R. Braithwaite, F.L.S. This will be illustrated with twenty-nine plates.—Messrs. Kegan Paul and Co. will publish during the ensuing season the following books bearing upon science:—"The Crayfish: an Introduction to the Study of Zoology," by Prof. T. H. Huxley, F.R.S.; with numerous illustrations; "The Brain as an Organ of Mind," by H. Charlton Bastian, M.D., F.R.S.; with numerous illustrations; "The Brain and its Functions," by J. Luys, Physician to the Hospice de la Salpétrière; with illustrations; "The First Principles of the Exact Sciences explained to the Non-Mathematical," by the late Prof. W. Kingdon Clifford; edited by R. C. Rowe, M.A. The above four books are new volumes of the *International Scientific Series*. "Hygiene and the Laws of Health," by Prof. Corfield, M.D.; "Chapters from the Physical History of the Earth: an Introduction to Geology and Palæontology," by Arthur Nicols, F.G.S.; with illustrations; "Matabele Land and the Victoria Falls: a Naturalist's Wanderings in the Interior of South Africa," by C. G. Oates. "An Introduction to the Science of Language," by the Rev. A. H. Sayce, Deputy Professor of Comparative Philology in the University of Oxford; in two vols. —The first volume of Prof. G. G. Stokes' "Mathematical and Physical Papers," reprinted, with additional notes by the author, from the Original Journals and Transactions, in which they appeared, is now nearly ready. It will be published by the Cambridge University Press.

The additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. W. Leekie; five Peregrine Falcons (*Falco peregrinus*) from Scotland, presented by Sir Mathew W. Risley, Bart., M.P.; four Green Tree Frogs (*Hyla arborea*), a

Fire-bellied Toad (*Bombinator igneus*), a Natterjack Toad (*Bufo calamita*), European, presented by Mr. H. A. Macpherson; six Green Tree Frogs (*Hyla arborea*), European, presented by Mr. A. Leipner, F.Z.S.; a Chacma Baboon (*Cynocephalus porcarius*) from South Africa, deposited; two Rendall's Guinea Fowls (*Numida rendalli*) from West Africa, a Javan Peafowl (*Pavo spicifer*) from Java, three Royal Pythons (*Python regius*) from West Africa, received in exchange; two Saffron Finches (*Sycalis flaveola*), bred in the Gardens.

SOME RECENT EXPERIMENTS ON THE CRYSTALLISATION OF SUPERSATURATED SALINE SOLUTIONS [1]

THE history of the various views held by different experimenters on the nuclear action of substances in exciting the sudden crystallisation of a supersaturated solution, has been already so well described by Mr. Charles Tomlinson, Prof. Liversidge, Prof. Grenfell, and others in their several papers upon the subject, that it is unnecessary to enter into any detailed description of their opinions; suffice it to say that they may be divided into two classes: the first holding the opinion that the crystallisation may be excited by the presence of certain fatty, oily, greasy, or other matters in the form of films; the second that the initial cause of the crystallisation must be sought for in the entrance of a particle of the same salt as that which is in solution.

In 1866 M. Gernez indicated that in the case of certain salts the sudden crystallisation might be brought about by the agency of some other salt perfectly isomorphous with the one in solution; thus a supersaturated solution of magnesium sulphate invariably crystallised when crystals of zinc or nickel sulphates containing seven molecules of water in their composition were introduced. Having been for a long time interested in the crystallisation of such solutions, I determined to carry out a large number of experiments upon carefully purified substances which observations have resulted in a confirmation of the views held by Gernez that truly isomorphous substances are active to solutions of each other.

The two methods employed in the experiments may be briefly stated as follows:—(1) The supersaturated solutions of the salts to be examined were placed in small wide-mouthed flasks; and the solutions of the salts employed as nuclei were introduced into very thin glass bulbs plugged with cotton wool, and suspended through a second plug of cotton in the neck of the flask, in a manner such as is indicated in Fig. 1. (2) A large number of the experiments were also performed by using, instead of the bulb tube for the introduction of the salt employed as nucleus, a tube bent as a siphon, thus ⌒, and like the bulb tube passing through cotton wool plugs in the necks of the flasks; the whole arrangement when complete being as represented in Fig. 2. To perform an experiment the solution in the bulb or in the siphon tubes was crystallised, and after a short time these tubes were gently lowered into the solutions in the flasks and the results observed. When the bulb tubes were used they were gently broken against the bottom of the flask, the contained crystals being thus brought in contact with the solution. To show that the disturbance produced by this breaking had of itself no exciting action on the solutions in the flasks, corresponding experiments were made with bulbs containing clean pieces of glass, when no crystallising action took place, showing that the mere disruption of the solution did not cause crystallisation. The largest number of experiments were, however, carried out by the siphon tube method, which is perfectly applicable after a little practice in the introduction of the tubes. The substances employed were in all cases carefully examined to ensure their purity.

With magnesium sulphate ($MgSO_4 . 7H_2O$) as a supersaturated solution, it was found that the other sulphates of the same group of metals, namely, those of zinc, nickel, cobalt, and iron, were immediately active in causing the crystallisation of the magnesium solution when they possessed an identical composition with it, as represented by the general formula ($M''SO_4 . 7H_2O$), M representing the different metals. When these salts contained only six proportions of water crystallisation is sometimes induced, but in this case it is of an entirely different nature, the deposition being slow and gradual. In connection with this group of salts interesting results were obtained with the double salt potassio-magnesic sulphate ($MgK_2(SO_4)_2 . 6H_2O$), crystals of which, although possessing the elements of magnesium sulphate, were found inactive to a solution of that body. In the case of supersaturated solutions of sodium sulphate ($Na_2SO_4 . 10H_2O$), the bodies sodium selenate ($Na_2SeO_4 . 10H_2O$), and sodium chromate ($Na_2CrO_4 . 10H_2O$), each analogous in form and constitution to the sulphates but containing the elements selenium and chromium instead of sulphur, were found capable of exciting crystallisation in solutions of the sulphate.

Experiments were also performed upon supersaturated solutions of potash alum ($AlK(SO_4)_2 12H_2O$), with crystals of iron and chromium potash alums, bodies agreeing in form and constitution with common alum, but containing chromium or iron in place of the metal aluminium. These bodies were found invariably active in exciting the crystallisation of the common alum solution. As alum crystallises in beautiful octahedral crystals some experiments were made to see how far the mere shape of the crystal could render it active in exciting the crystallisation; and for this purpose cubes of copper pyrites and octahedra of magnetite, both belonging to the same crystalline system as alum but having a different chemical structure, were employed. When these substances in a perfectly clear condition were placed in the alum solutions no sudden crystallisation was produced, showing that mere form alone is inactive in exciting this kind of crystallisation. Crystals of hydric disodic arsenate ($Na_2HAsO_4 . 12H_2O$) were also found active in the case of the isomorphous hydric disodic phosphate, containing phosphorus instead of arsenic, but otherwise analogous in form and composition. In connection

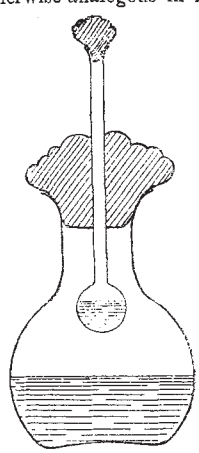

Fig. 1.

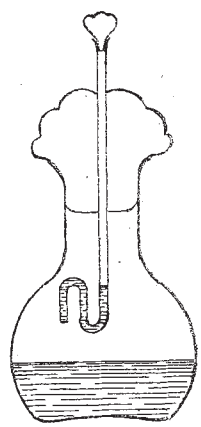

Fig. 2.

with this latter salt it is worth noting that when the hydric disodic phosphate is heated to convert it into sodium pyrophosphate ($Na_4P_2O_7$), this substance is no longer active to a supersaturated solution of the disodic salt. At the same time corresponding experiments were performed on the supersaturated solutions of magnesium sulphate, alum, &c., with substances of dissimilar form and chemical constitution; these bodies, however, invariably yielded negative results, being incapable of exciting the sudden crystallisation of the solutions.

Experiments carried out upon mixtures of similarly constituted and dissimilar bodies, yielded some interesting results. The substances employed were mixtures of the similarly constituted sulphates of magnesium and nickel, and the dissimilar sulphates of magnesium and sodium; experiments were also made with sulphates of nickel and sodium. In the case of these mixtures it was observed that two results might occur:—(A) The nucleus might remain growing in the solution without causing immediate crystallisation; or (B), Crystallisation might be induced at once on the addition of the nucleus; the deposition of the salts, however, differs according to the nature of the substances employed.

In the case of the dissimilar bodies, magnesium or nickel sulphates with sodium sulphate, it was found that a nucleus of either sulphate when gradual crystallisation took place, slowly increased by a deposition of the substance of the same nature as the nucleus added; and that even with the rapid crystallisation of dissimilar bodies the salt deposited consisted essentially of the substance of the same nature as the nucleus added.

[1] Abstract of a paper read before the Chemical Society on March 6, 1879.